DOCUMENT RESUME

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ABSTRACT

This resource guide produced for the Follow Through Program, primarily lists instructional aids and supplies; it also suggests practical implications for provisioning the classroom environment, gives specific suggestions for Project Follow Through directors, and lists addresses of suppliers. The materials are divided into nine categories, which are general classroom equipment, special equipment, art, music, dramatic play, woodworking, cooking, mathematics, and science. The catalog reference number, supplier, and cost are given for each item when appropriate. (PD)

ED 093848

Education Development Center
Follow Through Program
April 1971

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INSTRUCTIONAL AIDS, MATERIALS, AND SUPPLIES

-- GUIDELINES --

Some First Principles

Instructional aids and materials have no inherent power. A classroom can offer a rich material environment yet be sterile and lifeless. Materials--"stuff" in the broad sense--acquire value only as they are acted upon by children's and teachers' minds. Even such highly structured apparatus as Cuisenaire rods are, of themselves, powerless. They do not and cannot teach. Learning arises when children use such materials as aids to intellectual activity and as stimulants to feeling and imagination. Children and adults invest the materials with meaning; they literally invent multiple meanings, uses, and interpretations. By using their powers of mind and imagination children and teachers work transformations on inert materials and give them life.

Open classrooms can be successfully operated without any commercial materials. The natural materials, homemade materials, "junk" materials mentioned in the list have by far the widest application (you will find them repeated over and over again in almost every section) and are by far the most basic and essential part of the material environment.

Another priority is an abundance of really good books - for reference, for enjoyment, for stimulation, both at teacher and student levels.

The large list of commercial materials presented here is intended as a view of what is available; very few are absolutely necessary but we believe that teachers should have a choice so as to provide for the unique interests of their children in a way in which the teachers are comfortable. Please read carefully any introduction to a section so as to make the wisest use of the list.

Practical Implications

These philosophical realities have practical implications for the provisioning of the classroom environment and the use of this materials list.

1. Things which the children and their teacher bring to the environment, as an expression of their interest, are often more important than what the school provides. The enclosed list is no substitute for such natural and spontaneous enriching.

2. The physical environment of each classroom should be constantly changing to reflect the interests and activity of the children. No two classrooms will be alike.

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Practical Implications (Cont'd)

3. There is no standard materials list for every classroom, but a wide variety of materials should be available to teachers so that they can quickly respond to the unfolding needs and interests of their children.

4. They attached list is neither complete nor final. Teachers will want to add to it, and so will we. From time to time revisions and supplements will be issued.

Specific Suggestions to Follow Through Directors*

1. Since it is impossible to anticipate the special needs of next year's classes it is important that each teacher reserve one third of the alloted amount of the materials and supplies budget for major purchases during the school year.

2. From that same materials and supplies budget approximately $100 per classroom should be kept in reserve for teachers to use as petty cash for smaller classroom needs during the school year.

3. The materials and supplies budget recommendation is as follows:

$1200 per classroom new to the program
600 per classroom already in the program

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*The figures recommended here were specifically developed for a federally funded program which provided resources above regular school budgets. They represent generous amounts, nice to have, but not necessary to start an open classroom program. In fact, the availability of ample supply budgets can result in overstocked rooms with many underused commercial items and few contributions from the teacher and children.

We do recommend strongly for any open education program:

1. Allocating a sum of $100 per classroom as a reserve petty cash fund for the teacher to spend during the year.

2. Reserving up to 1/3 of the money for purchase later in the year if that is possible. In most school systems all orders must be in early to assure any delivery.

3. Gradual introduction of materials into the room during the year.

We still believe that accessible material and supply centers and teacher participation in the process of ordering materials and supplies are vital.

Specific Suggestions to Follow Through Directors (Cont'd)

The breakdown for the materials and supplies budget might look like this*:

a) For a classroom new to the program

1) Materials and Supplies (including books) purchased in advance of school year	$700
2) Materials and Supplies (including books) purchased during school year	400
3) Petty cash for use during school year	100
Total	$1200.

b) For a classroom already in the program

1) Materials and Supplies (including books) purchased in advance of school year	$300
2) Materials and Supplies (including books) purchased during school year	200
3) Petty cash for use during school year	100
Total	$600.

4. It is important that a readily accessible materials and supplies center be established so that teachers may conveniently examine and obtain materials for their classrooms. Such a center should facilitate the sharing of equipment and instructional aids.

5. It is essential that teachers be involved in the total process of selecting and ordering materials and supplies.

ADDRESSES OF SUPPLIERS

Alexander Steel Equipment Corp.
101 River Street
Waltham, Massachusetts 02154

Bell & Howell Company
Audio-Visual Products Division
7100 McCormick Road
Chicago, Illinois 60645

Brault-Bouthillier Ltd.
205 Laurier East
Montreal 14, Quebec
Canada

Cambosco Scientific Co.
342 Western Avenue
Boston, Massachusetts 02135

Childcraft Equipment Co., Inc.
155 East 23rd Street
New York, New York 10010

Community Playthings
Rifton
New York

Constructive Playthings
1040 East 85
Kansas City, Missouri 64131

Creative Playthings, Inc.
Princeton
New Jersey 08540

Cuisenaire Company of America, Inc.
12 Church Street
New Rochelle, New York 10805

Economy 5 & 10
1730 Massachusetts Avenue
Cambridge, Massachusetts

Edmund Scientific Company
100 Edscorp Building
Barrington, New Jersey 08007

ETA Division
A. Daigger & Co.
159 West Kinzie
Chicago, Illinois 60610

Flex Products Corp.
445 Industrial Road
Carlstadt, New Jersey 07072

Funtastic, Inc.
Mail Order Division
5902 Farrington Ave.
Alexandria, Virginia 22304

James Galt & Son Ltd.
Export Division
Brookfield Road
Cheadle, Cheshire,
England

J. L. Hammett Company
Hammett Place (195 Pearl Street)
Braintree, Massachusetts 02184

Herder & Herder
232 Madison Avenue
New York, New York 10016

LaPine Scientific Company
375 Chestnut Street
Norwood, New Jersey 07648

Liberty House
Box 3468
Jackson, Mississippi 39207

W. C. Long Co.
P.O. Box 311
Chatsworth, Georgia

Magnamusic - Baton
6394 Delmar Boulevard
St. Louis, Missouri 63130

McGraw-Hill Book Company
Webster Division
Manchester Road
Manchester, Missouri 63011

M-I Sales Company, Inc.
200 Fifth Avenue
New York, New York

Milton Bradley Company
P.O. Box 1581
Springfield, Mass. 01101

National Audubon Society
1130 Fifth Avenue
New York, New York 10028

National Products, Inc.
c/o Paul B. Segal
33 Bartlett Road
Randolph, Mass.

Peripole, Inc.
51-17 Rockaway Beach Blvd.
Far Rockaway, New York 11691

Parallel Mfg. Company
32 East 10th Street
New York, New York 10003

Philip & Tacey, Ltd.
69-79 Fulham High Street
London S.W. 6
England

A. E. Piggott Ltd.
All Saints Road, Bath Lane
Leicester LE3 5AB
England

Ranger Rick's Nature Club Services
381 West Center Street
Marion, Ohio 43302

Responsive Environments Corp. (REC)
Learning Materials Division
200 Sylvan Avenue
Englewood Cliffs, New Jersey 07632

F. A. O. Schwarz
745 Fifth Avenue
New York, New York 10022

Scott Scientific Co.
Sigma Division
600 Fort Collins Industrial Park
P. O. Box 2121
Fort Collins, Colorado 80521

Selective Educational Equipment (SEE), Inc.
3 Bridge Street
Newton, Massachusetts 02195

Shindana Toys
Div. of Operation Bootstrap, Inc.
6107 South Central Avenue
Los Angeles, California 90001

Taskmaster Ltd.
165-167 Clarendon Park Road
Leicester, England

Transparent Products Corporation
1727 West Pico Blvd.
Los Angeles, California 90015

Tri-Wall Containers, Inc.
Educational Materials & Services Division
One DuPont Street
Plainview, New York 11803

Tri-State Plastic Molding Company
Box 337
Henderson, Kentucky

Ward's Natural Science Establishment
P.O. Box 1712
Rochester, New York 14603

Welch Scientifc Company
7300 North Linder Avenue
Skokie, Illinois 60076

Western Printing Company
Racine
Wisconsin

Wollensak 3M Company
3M Center
St. Paul, Minnesota 55101

Workshop for Learning Things
5 Bridge St.
Watertown, Mass. 02172

Order British Books From:

British Book Centre
Fairview Park
Elmsford, New York 10523

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GENERAL CLASSROOM EQUIPMENT

- Elmer's glue
- Rubber bands
- Masonite scrap
- Knives
- Muffin tins
- Pens
- Magic markers
- Grease pencils
- Bowls
- Buckets
- C-clamp
- Chicken wire
- Erasers
- Containers:
  - plastic
  - glass jars
  - cans
  - cartons
  - bottles
  - jello molds
- Toothpicks
- Wallpaper paste
- Rubber cement
- Paper
- Pencils
- Scrap:
  - wood
  - fabric
  - metal
  - plastic
- Crayons
- Paint
- Plasticine
- Plaster of Paris
- String
- Yarn
- Wire
- Rope
- Ribbon
- Thread
- Straws
- Cardboard
- Bottle caps
- Cups:
  - flat
  - conical
- Seashells
- Stones
- Spools
- Peas, beans, seeds
- Macaroni
- Nuts & bolts
- Nails, Screws. washers
- Hooks
- Pipes
- Tubes:
  - plastic
  - wood
  - metal
  - cardboard
- Popsicle sticks
- Tongue depressors
- Pipe cleaners
- Dowels
- Canes
- Broom handles
- Sugar cubes
- Plastic bags
- Pegboard
- Food:
  - salt
  - vinegar
  - sugar
  - flour
  - cornstarch
- Baking soda
- Glycerin
- Food coloring
- Soap flakes
- Rulers, tapemeasures, yardsticks
- Measuring cups & spoons
- Quarts
- Egg timer
- *Stop watch
- Minute minder
- Clock
- Fabric:
  - felt
  - burlap
  - cotton
- An old bedspread
- Lamp, tensor light
- Candles
- Dust pan & brush
- *Oven - if possible
- Knives
- Hammers
- Scissors
- Screw drivers
- Drill
- Brace & bit
- Matt knives
- Wrenches

* = Items to be shared by several classrooms.

Sponges
Tape:
- scotch
- masking
- duct

Tri-wall
Fasteners:
- paper clips
- thumb tacks
- metal rings
- brass fasteners
- stapler, staples

Rubber bands
Sand paper
Unit blocks
Wax paper
Aluminum foil
*Hot plate
Workbench & vise
Paper cutter - one paper cutter per 200 children is ample
*Long arm stapler

* = Items to be shared by several classrooms

SPECIAL EQUIPMENT - Page 1

Note: Items may be shared by several classrooms.

ITEM	CATALOG REFERENCE	SUPPLIER	COST
Wollensak Tape Recorder	1520	Wollensak 3M Company	184.95
Wollensak Listening Center	for 8 headphones	" " "	14.00
Wollensak Headphones		" " "	51.80
Language Master Unit		Bell & Howell	250.00
Headphones	#36407	" "	28.00 per set
Dual Headphone Adapter	#40720	" "	3.75
Blank Card Set 4" x 14"	072481	" "	9.50 per set of 100 cards
Blank Card Set 3½" x 9"	072475	" "	6.00 per set of 100 cards
Small electric stove for cooking			
Small kiln for pottery			
Transparent Plastic Storage Boxes			
6-13/16 x 3-13/16 x 1-5/8	82	Tri-State Plastic	30.00/100
7-3/8 x 5-5/16 x 3-5/16	C69	" "	42.75/100
10-3/8 x 7-9/16 x 3-3/4	195F	" "	100.00/100
Cardboard Storage Trays (order in lots of 100)			
2" x 12"		Alexander Steel Equip.	12.00/100
4" x 12"		" " "	14.00/100
6" x 12"		" " "	16.00/100
8" x 12"		" " "	20.00/100
12" x 12"		" " "	22.00/100
Tri-Wall Cardboard			
42" x 54" (minimum order 20)		Tri-Wall Containers	2.41/sheet*
			1.34/sheet for 100 or more
4' x 5' (minimum order 100)			1.69/sheet
4' x 6' (" " ")			2.06/sheet
4' x 8' (" " ")			2.86/sheet

(subject to a plus or minus 10% production run)
(prices subject to change without notice)

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* - price includes freight on 42" x 54" size in lots of 20 only

SPECIAL EQUIPMENT - Page 2

Hot Plate	27-92	Cambosco	5.25
Portable Cassette Tape Recorder	Sony's is the best, sells for 99.50; there are many cheaper models.		
Polaroid camera			
Playframe	XSEEPF	SEE	78.00
Printing Press:		Brault-Bouthillier Ltd.	
Presse a volet 13,5 x 21 materiel complementaire A ½ police script, type 18 no. 1			117.15*
extra ½ police of type			12.80*
Styrofoam storage & display trays (12 compartments)	P-80,090	Edmund	4.98/6
Record Player	buy locally to suit classroom's or school's needs		

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* - Canadian money

ART - Basic Materials - Page 1

	Drawing	Painting	Mixed Media	Graphics	Ceramics	Sculpture	Weaving			
Pencils - many different kinds	X	X	X	X	X	X	X	Buy locally		
Magic Markers - assorted colors	X	X	X	X				Buy locally		
Colored Chalks - assorted colors (144/box)	X	X						Hammett	91212	4.35/box
Pentels - black	X	X		X				Buy locally		
Char-kole (compressed charcoal)	X	X		X				Hammett	41573	1.10/box, 1.00/box if 12 or more
Paper - (a wide variety of paper is essential. The following is a good basic list - check local suppliers)										
Construction, assorted colors 9"x12" 18"x24"	X	X	X	X			X	Hammett	17100 17400	.65/ream 2.60/ream
Manila. 18"x24"	X	X	X					Hammett	12144	5.80/ream
Newsprint, 18"x24" (100 sheets/pad)	X			X				Hammett	11140	.70/pad
Black Manila, 18"x24"	X	X						Hammett	12224	10.00/ream

ART - Basic Materials - Page 2

	Drawing	Painting	Mixed Media	Graphics	Ceramics	Sculpture	Weaving			
Bogus , 18"x24"	X	X						Hammett	12214	4.00/ream
White Vellum Drawing, 18"x24"	X		X					Hammett	12004	7.80/ream
Project Roll, 3' x 20 yds.	X	X						Hammett	17971	1.75/roll
Old Newspapers			X					Scrap		
Papers of many textures and colors			X					Scrap		
Cardboard, shirt cardboard			X			X	X	Scrap		
Crayons - Crayola, 24 colors/box	X		X					Hammett	32014	4.60/doz. 4.15/doz. -12 doz or more
Fabric - of various textures & colors			X	X				Scrap		
Elmer's Glue			X	X		X		Local Hardware store		
India Ink, assorted colors	X	X	X	X				Hammett	23874	3.95

ART - Basic Materials - Page 3

	Drawing	Painting	Mixed Media	Graphics	Ceramics	Sculpture	Weaving			
Battleship Linoleum				X				Scrap from store		
Grippit Rubber Cement			X					Buy locally		
Pine Boards				X		X	X	Lumber yard		
Paint - Poster Color, dry or moist		X	X	X				Hammett		
Prang Instant Powder Tempera										
Red									36815	1.10/can,
Yellow									36810	1.00/can
Blue									36819	if 12 or
Black									36825	more
White									36826	
Artista Tempera (moist)										
Black									32673	
Red									32665	2.90/qt.,
Yellow									32669	2.60/qt.
Blue									32677	if 12 or
White									32674	more
Turquoise									32675	
Magenta									32683	
Burnt Sienna									32652	1.75/pt
All kinds of scraps: tubes, unit material, etc.			X			X				
String - various kinds			X	X		X		Local 5&10		

ART - Basic Materials - Page 4

	Drawing	Painting	Mixed Media	Graphics	Ceramics	Sculpture	Weaving			
Toothpicks						X		Grocery store		
Wallpaper Paste						X		Hardware store		
Ceramic Clay - (cone 08-04)					X			Ceramic supplier		
Slips or underglaze					X			Ceramic supplier		
Glaze					X			Ceramic supplier		
Printing Ink - Tru-Tone Water Base				X				Hammett		
(other colors available- see Hammett catalogue) Red									70200	.60/tube
Yellow									70202	
Green									70203	
Blue									70204	
Black									70209	
White									70210	
Plasticine						X		Hammett		
(other colors available- see Hammett catalogue) Red									76516	.60/lb.
Yellow									76510	
Dark green									76514	
Dark blue									76513	
Black									76501	
White									76502	

ART - Basic Studio Equipment - Page 1

	Drawing	Painting	Mixed Media	Graphics	Ceramics	Sculpture	Weaving			
Bowls (plastic)					X	X		from 5 & 10		
Brayers - Speedball soft rubber 6"				X				Hammett	70059	$3.00
Brushes: Easel brush 1" Easel brush 1½" Wash brush	X	X	X	X	X			Hammett	44335 44336 44415	.65 1.25 .80
Buckets					X	X		Local hardware st.		
C-clamps				X			X	" " "		
Chicken Wire			X			X	X	" " "		
Chisels				X		X		" " "		
Covered Cans			X		X	X		Scrap		
Drawing Boards	X	X	X	X				cut from tri-wall or homosote sheets		
Erasers - Gem (40/box)	X			X				Hammett	50704	2.95
Files						X		Local hardware st.		
Gouges				X		X		" " "		
Hacksaw Blades					X	X		" " "		

ART - Basic Studio Equipment - Page 2

	Drawing	Painting	Mixed Media	Graphics	Ceramics	Sculpture	Weaving			
Hammers						X	X	Local Hardware		
Jars		X	X	X	X	X		Scrap		
Knives				X	X	X	X	Local Hardware		
Mallets (wooden)						X		" "		
Carving Set - for block prints, wood, or linoleum				X		X		Hammett	70035	$7.60
Masking Tape	X	X	X	X			X	Buy locally		
Masonite				X	X			Scrap from lumber yard		
Matt Knives - "utility" knives			X	X		X		Hammett	70580	1.00
Modeling Tools (set)					X	X		Hammett	76448	3.60
Muffin Tins		X		X				Hardware store- 8 cup size		
Pens	X	X	X	X				Pen holders & points at 5&10		
Plaster Bats					X			Cast plaster in paper pie plate		

ART - Basic Studio Equipment - Page 3

	Drawing	Painting	Mixed Media	Graphics	Ceramics	Sculpture	Weaving	
Plastic Bags		X			X	X		Buy locally
Rasps					X	X		Buy from local hardware store
Rolling Pins					X			Buy locally
Saws			X	X	X	X	X	Buy locally
Scissors			X	X	X	X	X	Buy locally
Sponges	X	X		X	X			Buy locally
Spoons		X	X	X	X			Buy locally
Stamp Pads				X				Buy locally
Strainers					X			Buy locally
Thumbtacks	X	X	X	X	X	X	X	Buy locally
Vises (one heavy vise per classroom)						X		Buy locally

ART - Books for Teachers

The Natural Way To Draw
Kimon Nicolaides, Boston, Houghton, Mifflin Co., 1941

Animal X-Rays
Brenda Putnam New York, G.P. Putnam

The Artist's Handbook of Materials & Techniques
Ralph Mayer, New York, The Viking Press 1953

A Potter's Handbook
Glenn C. Nelson New York, Holt, Reinhart & Winston, 1966

Making Pottery Without a Wheel: Texture & Form in Clay
F. Carlton Ball & Janice Lovoos, New York, Reinhold Publishing Company, 1965

Block Printing on Textiles
Janet Erickson, New York, Watson-Coptill Publications, Inc. 1961

With A Free Hand
Adelaide Sproul, New York, Reinhold Book Corp., 1968

An Experiment in Education
Sybil Marshall, Cambridge, England, Cambridge University Press. 1963

Art & Visual Perception
Rudolf Arnheim, Berkeley, California, University of California Press, 1957

Visual Thinking
Rudolf Arnheim, Berkeley, California, University of California Press, 1969

Readings in Art Education
Elliot W. Eisner & David W. Ecker. Waltham, Mass., Blaisdell Publ. Co., 1966

"Vision & Value" Series: Structure; Nature of Art & Motion; Education of Vision
Gyorgy Kepes, ed., New York, George Braziller, 1965

Learning to See Series: Books 1, 2 & 3
Kurt Rowland, New York, Van Nostrand Reinhold Co., 1969

Architecture: A book of projects for young adults
Forrest Wilson, New York, Reinhold Book Co., 1968

Crafts Design
Spenser Moseley, Pauline Johnson & Hozel Koenig, Wordsworth Publ. Co., Belmont, California. 1969

Dye Plants and Dyeing (#46), Brooklyn Botanic Gardens, 1000 Washington Avenue, Brooklyn, N.Y. 11225

MUSIC - Page 1

The following represents an ensemble of tuned and untuned percussion instruments designed by Carl Orff which could be shared by several classes. If only one or two tuned instruments are purchased, the starred items would be most useful because they fall within the range of children's voices of the ages in our classrooms. If three or more are purchased, one from each section would be practical and one of each choir: soprano, alto, bass.

Tuned Percussion - all with suitable beaters

1.	Bass metallophone	BMd	Magnamusic-Baton	$172.00
2.	Bass xylophone	BXd	"	156.00
3.	Alto metallophone	AMd	"	57.60
4.	*Alto xylophone	AXd	"	53.60
5.	*Alto glockenspiel	AGd	"	20.80
6.	Soprano metallophone	SMd	"	42.40
7.	Soprano xylophone	SXd/a	"	46.80
8.	Soprano glockenspiel	SGd/D	"	24.60

Other Percussion Instruments (as many as possible to be purchased)

	Standing drums with soft beaters			
9.	12"	P30	Magnamusic-Baton	29.60
10.	14"	P35	"	34.40
11.	16"	P40	"	39.20
12.	2 Tambourines 10"	RST25	"	11.90 ea.
13.	2 Tambours 12"	RST30	"	13.60 ea.
14.	2 pairs Cymbals 10"	C25	"	15.20 ea.
15.	1 Snare Drum & Sticks	KT30K	"	38.00
16.	4 Triangles (largest size)	T30	"	5.80 ea.
17.	4 pairs Castanets with handles	KS1	"	4.70 ea.

Wind Instruments

18.	Soprano Recorders (one for each child wishing to play)		Magnamusic-Baton	3.25 ea.

MUSIC - Page 2

19. Silk scarves for dance. 36" wide; China silk. Available at many department stores. Plain colors are most effective.

20. Wood or plastic hoops for dance. 30" diameter is workable size for primary children. Plastic hoops are less expensive and are available at many toy stores.

21. Boxes to add levels in dance. These can be made of tri-wall but wood is more durable and attractive. Suggested sizes appear below. They should be large enough to hold several children. 5'x5'x1'; 2'x2'x3'; 5'x1'x1'; 1'x1'x2'.

22. Playground balls of inflatable rubber, six inches in diameter. One for every two children in the expected group.

Environmental materials for a sound corner in the classroom

23. For blowing: Bottles of several sizes, shells, lengths of piping

24. For striking: Metal scraps, wood blocks, sticks, animal hides, etc.

25. For shaking: Dried pods, pebbles, small shells

26. For plucking: String, elastic, plastic strips and boxes over which these can be stretched.

27. Tape recorder available to each classroom

28. Record player available to each classroom

29. Autoharp (15 bar Appalachian)
P 1552 Peripole 38.95

Song Book Suggestions

The list is intentionally short. It furnishes adequate material for a wide range of choice.

Wilder. Alec	Night Songs and Lullabies	Harper & Row, N.Y.
Shekerjian, Haig & Regina	Ballads, Songs & Snatches	Harper & Row, N.Y.
Landeck, Beatrice	Echoes of Africa	David MacKay & Co., N.Y.
" "	Songs to Grow On	"
" "	More Songs to Grow On	"
Seeger, Ruth Crawford	Animal Folk Songs for Children	Doubleday & Co., N.Y.
" " "	American Folk Songs for Children	"
Lomax, John & Alan	Folk Songs U.S.A.	Duell. Sloan & Pearce, N.Y.
Belafonte, Harry	Songs Belafonte Sings	Duell. Sloan & Pearce, N.Y.
Marais, Josef	Songs of the African Veld	G. Schirmer, N.Y.

Resource Books for Teachers

Rowen, Betty	Learning Through Movement	Teachers College Press, Columbia University
Gray & Percival	Music, Mime, and Movement for Children	Oxford U. Press
Canner, Norma	And a Time to Dance	Beacon Press, Boston
Mettler, Barbara	Materials for Dance for Children	Mettler Studios Box 4456 University Station Tucson, Arizona

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POEMS TO ENJOY ALONE OR TOGETHER

DAWN AND DUSK - Chosen and introduced by Charles Causley, Brockhampton Press Ltd. Salisbury Road, Leicester, England

AS IF - John Ciardi, Rutgers University Press, New Brunswick, N. J. $3.50

TAKE SKY David McCord, Little, Brown and Company, Boston

FAR AND FEW Rhymes of the Never Was and Always Is - David McCord,

TO THOSE WHO SEE - Gwen Frostic

WIND SONG Carl Sandburg, Harcourt, Brace & World, New York $3.00

FOLLOWING THE SUN - selected and introduced by Leonard Clark, Odhams Books, Ltd. Long Acre, London

THE EARTH OWL AND OTHER MOON PEOPLE - Ted Hughes, Faber and Faber, Russell Square, London

AN INHERITANCE OF POETRY - collected and arranged by Adshead and Duff, Houghton Mifflin Company., The Riverside Press $5.00

FAVORITE POEMS OLD AND NEW - Helen Ferris, Doubleday & Co., Garden City New York - $5.95

OUT OF THE EARTH I SING - edited by Richard Lewis, W. W. Norton & Co., New York - $3.95

VERSE THAT IS FUN - Barbara Ireson, Faber and Faber, Russell Square, London

ONCE AROUND THE SUN - an anthology of poetry by Australian children, compiled by Brian Thompson, Oxford University Press, Melbourne, London

LONESOME CITIES - Rod McKuen, Random House, New York, 1968

STANYAN STREET AND OTHER SORROWS - Rod McKuen

THE BAT-POET - Randall Jarrell, The MacMillan Co., New York, 1967

THE CREATURES CHOIR - Carmen Bernos de Gasztold, The Viking Press, New York, 1965

PRAYERS FORM THE ARK - Carmen Bernos de Gasztold, The Viking Press, New York, 1968

ON CITY STREETS - Selected by Nancy Larrick, N. Evans and Co., New York, 1968

MUSIC - Page 5

ONLY THE MOON AND ME - Marcia Kay Keegan, J. B. Lippincott Co., Philadelphia or New York, 1969

CHILDREN WRITE POETRY, A CREATIVE APPROACH - Dover Publications, Inc., New York, 1967

REFLECTIONS ON A GIFT OF WATERMELON PICKLE - compiled by Stephen Dunning, Edward Leuders, Hugh Smith, Scott, Foresman & Co. 1967

POEMS OF EARTH AND SPACE - Claudia Lewis, E. P. Dutton & Co., Inc. N. Y. 1967

OLD POSSUM's BOOK OF PRACTICAL CATS - T. S. Eliot, Harcourt, Brace & World, Inc. 1939 - $2.50

CRICKET SONGS - translated by Harry Behn, Harcourt, Brace & World, Inc., 1964 $2.50

MR. SMITH AND OTHER NONSENSE - William Jay Smith, A Seymour Lawrence Book, Delacorte Press, 1968 - $3.75

A PAPER ZOO - Selected by Renee Karol Weiss, The MacMillan Co., N. Y. 1968

MIRACLES - collected by Richard Lewis, Simon and Schuster, N. Y. 1966 - $4.95

THE WIND AND THE RAIN - collected by Richard Lewis, Simon and Schuster, N. Y. 1966 - $3.95

WORDS - Robert Creeley - $2.25

POEMS TO SOLVE - May Swenson - $3.50

HAPPENINGS, NEW POEMS FOR SCHOOLS - edicted by Maurice Wollman and David Grugeon, George G. Harrap & Co., Ltd. London

THE COMPLETE NONSENSE OF EDWARD LEAR - edited by Holbrook Jackson, Dover Publications, New York

THE LOOKING GLASS BOOK OF VERSE - compiled by Janet Adam Smith, Random House, New York - $2.49

VERY YOUNG VERSE - Barbara Peck & Antoinette Brown Suter, Houghton Mifflin Co., Boston

TIME FOR POETRY - Arbuthnot, Scott, Foresman & Co., Chicago - $4.25

A MOMENT OF WONDER - Richard Lewis, Dial Publ - $3.95

THE MONSTER DEN OR LOOK WHAT HAPPENED AT MY HOUSE-AND TO IT - John Ciardi, J. B. Lippincott Co., Phila., N.Y., 1966 - $2.82

DRAMATIC PLAY - Page 1

I. Equipment for Housekeeping Area
II. Equipment for Other Kinds of Dramatic Play

I. Equipment for Housekeeping Area

Home made housekeeping furniture may be made from tri-wall, plywood, bricks, sturdy cardboard cartons, or from wooden boxes and crates.

Commercially made sturdy hard wood furniture is expensive, but lasts many years and is usually quite attractive. The following list of pieces are available from suppliers of early childhood educational equipment. A housekeeping corner may have merely a stove and table, or it may resemble a fully equipped kitchen, living room and bedroom. Establishing an area which will give children the idea of housekeeping and home life is of more importance than seeking to duplicate a fully equipped home.

The housekeeping area may include an actual play house or simply be a screened-off area in the classroom.

Play frame	XSEEPF	SEE	78.00
Old blankets, sheets, bedspreads			
Tri-wall interchangeable units (see C-Construction), may be used to fence off an area, or to build a house			
Sink (formica top, real dish pan)	OH 249	Childcraft	29.50
Stove (16½" wide)	NH 490	Creative Playthings	21.50
(24" wide)	OH 245	Childcraft	26.00
Refrigerator	OH 246	Childcraft	28.50
Hutch cupboard	NH 491	Creative Playthings	28.50
Ironing Board	OH 113	Childcraft	8.50
One or two of these:			
Bed	C 110	Community Playthings	12.50
Bed, double decker	NQ 716	Creative Playthings	14.00
Cradle	C 140	Community Playthings	16.50
Iron (wooden)	OH 114	Childcraft	1.75
House cleaning set (brooms, dust pan, etc.)	OH 158	Childcraft	4.95
One or two Rocking Chairs	buy locally or A 800	Community Playthings	8.50
Dresser with mirror	OH 252	Childcraft	20.50
Cooking set (aluminum) or	NH 289	Creative Playthings	6.00
Cooking set (small sturdy pots and pans)	buy locally		
Tea Set (aluminum)	NH 286	Creative Playthings	7.50
Flatware (regular size)	buy locally		
Small table & chairs	17/36	Constructive Playthings	35.95
Telephone (wooden)	NA 358	Creative Playthings	4.50
Telephone	sometimes donated by Telephone Company		

DRAMATIC PLAY - Page 2

Carriage	C 130 Community Playthings	24.50
Mirrors (hand & full length)	buy locally	

Dress-up clothes - Donated - Dresses, hats, vests, pocket-books, boots, shawls, jewelry, neckties, uniforms: policeman, fireman, doctor nurse, sailor, etc.

Dolls - (see Section E) Family & Community life

II. Equipment for Other Kinds of Dramatic Play

The classroom environment should allow freedom of personal expression so that children will be able to spontaneously assume character roles, and act out parts of current interest to them. This assuming of roles child development specialists tell us is an important learning process of young children. After a visit to the hospital a child may be particularly interested in the roles of doctor and nurse. When there is alot of interest in the U.S. about a rocket launching, children may want to be spacemen and build space ships. Through their dramatic play children often indicate to teachers their interests and concerns.

Before purchasing equipment or planning for specific dramatic play activities it is essential that the interests of both teacher and children be considered. A main purpose of dramatic play is to extend the ideas and interests of the people (both adult and children) in a particular classroom. The equipment listed below is suggestive rather than inclusive

A. Medical Equipment

Stethoscopes	ON 233	Childcraft	2.75
Nurse & Doctor uniforms			
Blocks or boards for making an "operating table" (see C-construction)			
Doctors' bags			
Toy ambulance (see D-transportation)			

B. Farming Equipment

Blocks & boards for barn and fences (see C-construction)			
Over-alls, straw hats	donated		
Wooden figures:			
Set of 13 farm animals	2001	Constructive Playthings	2.00
Set of farm family	2002	Constructive Playthings	2.00
Rubber figures:			
Set of 7 farm animals	NB 988	Creative Playthings	10.75
Tractor trailer	T 22	Community Playthings	24.75

C. Construction Equipment

Tri-wall - interchangeable units of this material with wooden nuts and short threaded dowels for bolts for joining pieces may be used to build houses, barns, boats, space ships, etc.

Sheets of Tri-wall may also be slotted together to stand as dividers, rooms, stores, puppet theatres, etc.

Unit blocks:			
Full set, 760 pcs.	OB 357	Childcraft	235.00
Half set, 380 pcs.	OB 358	Childcraft	119.00
Hollow blocks, School Set, 80 pcs.	NP 130	Creative Playthings	235.00
Half-scale Unit Blocks, (recommend two sets)	NB 647	Creative Playthings	5.95

D. Transportation Equipment

Large wooden vehicles:			
Dump truck	OB 243	Childcraft	13.50
Flat bed trailer truck	OB 241	Childcraft	15.50
Small wooden vehicles & boats:			
Police car	OB 275	Childcraft	6.50
Ambulance	OB 277	Childcraft	6.50
Sedan	OB 255	Childcraft	6.50
Station wagon	OB 256	Childcraft	6.50
Ferry boat	OB 191	Childcraft	7.95
Steamer-Freighter-Tanker	OB 192	Childcraft	8.50
Tugboat	OB 120	Childcraft	8.00
Steering wheel	OB 215	Childcraft	6.75
Steering wheel	donated from old car, mounted in box or crate		
"Matchbox" series of miniature cars		locally	.69 ea.

E. Family & Community Life

Dolls - unbreakable - should have different sizes, shapes, sex, colors, ethnic features, and other characteristics as follows:

Some dolls should be washable
Some dolls should be cuddly
Some dolls should be easy to dress and undress
Some dolls should be big enough to "walk"

Vinyl baby dolls:			
White	OH 160	Childcraft	2.50
Black	OH 161	Childcraft	2.50
Sasha dolls:			
Girl	ND 341	Creative Playthings	15.75
Boy	ND 342	Creative Playthings	15.75
Rag dolls:			
Girl	120 a	Liberty House	4.95
Boy	120 b	Liberty House	4.95 (both for 9.50)
Dee Bee (large black cuddly doll)	#1001	Shindana Toys	6.00
Baby Nancy (black, nurses, wets, rooted hair in different styles)	#2001	Shindana Toys	4.00
Large "walking" dolls	purchase locally from discount toy stores		

Doll clothes: a good item for parents or volunteers to make. They should be easy to put on and take off. Fabric must be washable.

Doll sheets & blankets: also a good item for parents to make

Puppets:			
Black Family Hand	90 234	Childcraft	12.00
White Family Hand	OD 185	Childcraft	12.00
Small figures:			
Stationary White Family	NB 290	Creative Playthings	5.95
Stationary Black Family	NB 490	Creative Playthings	5.95
Stationary Black Community Workers	NB 405	Creative Playthings	6.50
Stationary White Community Workers	NB 305	Creative Playthings	6.50
Talk with Puppets:			
Porpoise	OD 205	Childcraft	2.50
Duck	OD 206	Childcraft	2.50
Baby Bear	OD 207	Childcraft	2.50

Wolf	OD 208	Childcraft	2.50
Pig	OD 209	Childcraft	2.50

F. Store Equipment

Store front made of tri-wall or cardboard cartons

Cash register, preferably real second hand, rather than toy

Play money buy locally

Merchandise - Depends on type of store:
Shoe store - use shoes from dress-up area
Food store - equipped with empty boxes and cartons
Florist's shop - real flowers gathered by children
Lemonade & popcorn can be made by children and "sold" to their classmates
Etc.

G. Space Ships

Space ships and rockets may be made by children using any of the items listed under C-construction.

Helmets can be made from small plastic pails, cardboard, old football helmets, etc.

H. Other Equipment

The list of other dramatic play possibilities for which equipment may be desired is as long as the imagination of the teacher and the children.

They may want to go "fishing", thus string and pole may be provided.

They may want to be zoo animals - blocks build fine cages.

They may want to dig for gold - a shovel on the playground or in the sand box will take care of this.

They may want to be super-man, fairies, monsters, rabbits, clowns. Bolts of cloth, make-up which can be washed off easily, capes, wings, can transform children into whatever role they desire to play.

Dinosaur Kit (24 different miniature dinosaurs)	70,817	Edmund Scientific	6.00

I. Outdoor Dramatic Play Equipment

Should be built locally or donated:

- Sand box
- Old boat
- Old car
- Play houses
- Tunnels
- Jungle gyms (often become mountains or cages)
- Small toys & figures for sand box (see E - Family & Community Life)

WOODWORKING

1.	Workbench, 24" high	NA 442	Creative Playthings	59.00
	same, with tri-wall base		Workshop for Learning Things	23.40
	Vise, for above		" " " "	4.65

Real Tools, Not Toys - purchase from local supplier

2. 4 small Claw Hammers
3. 1 Crosscut Saw
4. 2 Keyhole Saws
5. 2 Small Screw Drivers
6. Screw Driver Electrical
7. 2 Pliers
8. 2 Coping Saws

9. Wire
10. Wire Cutter
11. Sand Paper
12. Doweling - varying widths
    (wooden squares and circles for nuts
    (threading kit

13. Paint
14. Turpentine
15. Shellac
16. Brushes

17. Wood
18. Pegboard
19. Springs
20. Hinges, knobs, nails, screws, nuts, bolts
21. Large metal pulleys, various sizes
22. Rope, nylon cording
23. Rasp and files

COOKING EQUIPMENT

1. Mixing Bowls
2. Measuring Cups
3. Measuring Spoons
4. Cake tins, pie plates, cookie sheets, muffin tins
5. Sauce Pans
6. Mixing Spoons
7. Frying Pan
8. Timer
9. Rolling Pin

10. Aprons
11. Pot Holders
12. Towels
13. Hot Plate
14. Oven - portable if necessary

MATHEMATICS - INTRODUCTION

This list is a guide for materials which are useful in the area of Mathematics. It is to be used with discretion; if an article is listed as "essential" and you have no idea what it is then look for it in the catalogue; if you still have doubts about its usefulness then ask your advisors about it. Do not order equipment blind!

The first section of the list is a collection of items, both commercial and non-commercial, which we consider to be essential for a rich Mathematical environment. We consider these materials basic materials as they are open-ended in the ways they can be used and their uses can cover many areas of development.

Although we have labeled this section essential, when ordering the commercial materials listed, thought must be given to the allotment of your budget in relation to other areas in the classroom. It may not be possible or indeed necessary to order all the commercial articles listed here. We do, however, consider it possible and advisable to have most of the non-commercial articles available.

We have included a sample sheet showing how examples of different types of materials from the basic list can be used to cover many areas of development in Mathematics. We hope this will encourage you to look beyond the material to the uses it can be put to.

Much of the child's Math experience will occur outside the recognizable "Math Corner" and will come from activities labeled as "Art", "Science", "Sand & Water Play", etc. For this reason we may refer you to other parts of the materials list for some of the basic materials.

The later parts of this list are collections of most of the available materials which we consider either desirable or interesting (but not necessary) extensions of the basic materials. We suggest that with the construction materials you would be better off to order a large quantity of one type rather than one little set of each.

Omitted from the list are articles which we consider not desirable for this age-group, articles which are too expensive for what they add, and articles we consider poorly made or highly prone to breakages for other reasons.

All parts of the Math Materials list will be added to as we find more exciting raw materials, develop new ideas for existing materials, and scan the catalogues for the latest innovations in the commercial field.

	Discrimination Sorting & Ordering	Pattern Relations	Boundaries & Regions (Inside - Outside)	Measurement	Volume	Weight & Balance	Geometric Relations	Logical Relations	Number Work (Computation)	Symbolization (Representation)	
1. Attribute Blocks	X	X	X				X	X	X	X	
2. Chess & Checkers		X					X	X			
3. Tangrams	X	X	X	X			X				
4. Lego	X	X	X	X	X	X	X	X		X	
5. Unifix Cubes	X	X	X	X	X	X		X	X	X	
6. Canes, Doweling, Wood Slats	X	X	X	X		X	X		X	X	
7. Miniatures - Cars, Animals, etc.	X	X	X	X	X	X		X	X	X	
8. Stones, Shells, Spools, Bottle Caps, String, Yarn, etc.	X	X	X	X	X	X	X	X	X	X	
9. Sugar Cubes, Beans, Macaroni	X	X	X	X	X	X	X	X	X	X	
10. Calendars, Ads, Schedules, Newspapers	X			X					X	X	
11. Geo Boards	X	X	X	X			X	X	X	X	

Sample applications of some materials to the various areas of mathematical development.

MATHEMATICS - Basic Materials - Page 1

Chess & Checkers set	buy locally or 163	Milton Bradley	1.30
Unifix Cubes (order at least 3 sets)			
10 ea. of 10 colors	102-U-08	REC	4.00
Geo-Squares (geoboards)	G-2	Scott Scientific	8.50/5
Colored Rubber Bands	buy locally or		
pkg. of 200+	BAND01	SEE	.35
10 or more pkgs.			.30 ea.
Beads and Laces	470F	Milton Bradley	6.50
Craft-Stix (popsicle sticks)		Constructive Playthings	1.20/1000
Tongue Depressors	92692	Hammett	2.75/500
Counting Sticks -- assorted colors			
2"	64046	"	.60/100
4"	64048	"	.85/100
8"	64051	"	1.30/100
12"	64053	"	1.90/100
Tape Measures	buy locally		
Yard Sticks	"		
Meter Sticks	"		
Canes, Doweling, Wood Slats	"		
Stickers -- 1" square	"	(various colors)	
Graph Paper -- 8½" x 11"			
1" squares	12560	Hammett	2.70/ream
1/2" squares	12551	"	2.70/ream
1/4" squares	12541	"	2.70/ream
Miniature toys by the bag airplanes, cars, animals, etc.	buy locally	(usually available in large 5 & 10 or discount store)	
Straws and Pins	"		
Toothpicks	"		
String, Wire, Shoelaces	"		
Yarn, Ribbon, Cording, Felt, Scrap material	scrap from local companies		
Stones, Shells, Pine cones, Spools, Bottle caps, Buttons, Beads	collect with children's and parents' assistance		
Jars, Cans, Egg cartons, Boxes (all sizes and shapes), Cardboard	collect from parents		
Sugar cubes, beans, macaroni	buy locally		
Calendars, Train, Bus, and Plane schedules	collect locally		
T.V. Guides, Newspapers, Supermarket ads	collect locally		
Large sheets of masonite pegboard	buy locally		
Pegs	NN 115	Creative Playthings	.60/100
Golf tees	buy locally		

MATHEMATICS -- BASIC MATERIALS - Page 2

Pattern Blocks	PBCK01	SEE	10.75
Teacher's Guide for Pattern Blocks	17560	McGraw-Hill	2.64
Geo-Blocks	17523	"	32.50
Teacher's Guide for Geo-Blocks	17524	"	2.46
Attribute Games (ESS)	AGCK00	SEE	8.85
Teacher's Guide for Attribute Games	18479	McGraw-Hill	4.86
Attribute Games with guide	AGCKTG	SEE	12.95
One of these, or one of each type:			
Dienes Logical Blocks (4 x 3 x 2 x 2 = 48 blocks)			
large plastic set	Z 80007	Herder & Herder	19.50
medium wood set	Z 80300	"	6.50
small plastic set	Z 80301	"	3.50
Invicta Attribute Blocks (5 x 3 x 2 x 2 = 60 blocks)			
large plastic set	INVA00	SEE	18.25
small plastic set	IN1278	"	2.50
Basic Shapes Set	INV140	SEE	4.75
Trundle Wheel	ARN001	"	4.50
Marbles	buy locally or		
10 ea. of 6 colors	MARBLE	SEE	.60
1000 of 1 color	MARBLM	"	8.00
Dice	buy locally or		
1/2"	DIE102	SEE	.30/pr
	DIE126		1.25/6 pr
	DIE172		11.50/72 pr
3/4"	DIE304	"	.60/pr
	DIE346		2.50/6 pr
	DIE372		23.00/72 pr
Counting Chips 25 ea. of 8 colors	PRM008	"	1.75
Multi-Fit master set		Economy 5 & 10	10.00*
Lego #375		"	10.59*
Lego #615		"	16.50*
Lego #004 master builder set		"	22.50*
Playplax Rings & Squares		"	8.50*
One of these:			
Tinkertoy #155		"	5.98*
Connector	OM 118	Childcraft	12.00
Jr. Engineer set 5	ES7453	SEE	17.50

* - less 10% discount to schools

MATHEMATICS - Basic Materials - Page 3

Play money	buy locally		
Cash register	"	(preferably a real one, second-hand, rather than a toy)	
Unit Blocks			
full set (760 pcs.)	OB 357	Childcraft	235.00
half set (380 pcs.)	OB 358	"	119.00
Tangram pieces (4 sets)	17446	McGraw-Hill	2.60*
Tangram pieces (12 sets)	SEEP04	SEE	4.00*
Tangram pattern cards	17445	McGraw-Hill	4.62

* - McGraw-Hill's tangrams are thicker than SEE's; both fit the pattern cards sold by McGraw-Hill.

MATHEMATICS -- DESIRABLE MATERIALS - Page 1

Flexagons	NQ 116	Creative Playthings	5.95
Geo-Strips	INC141	SEE	7.50
Poleidoblocs set G	121-G-10	REC	20.00
Cuisenaire Rods	CG-8	Cuisenaire Co./America	14.95
Mirror Cards	18418	McGraw-Hill	12.95
Teacher's Guide for Mirror Cards	18417	"	3.57
Multimat "Squares of Sums"	GN1356	SEE	7.25
Multimat "All Squares"	GN1357	"	7.25
Wooden Puzzle Assortment	70,205	Edmund Scientific	5.00
Haar Hoolim Perception Games	ALP001	SEE	3.50
Kalah	SG 104	Childcraft	7.00
Psyche Paths	M-8	Cuisenaire Co./America	4.00
Etch-a-Sketch		Economy 5 & 10	3.98*
Multiway Rollway	NR 604	Creative Playthings	6.50
Giant Engineer Construction Kit	ES9884	SEE	58.60
Play Panels	OM 383	Childcraft	4.95
Clink-a-Links	CLK320	SEE	4.50
Hex-Upon		Economy 5 & 10	6.00*
Rising Towers	NR 255	Creative Playthings	3.00
Constructo Straws	60563	Hammett	2.30
Connect	UR 322	Creative Playthings	5.00
Unifix 100 Track (only with Unifix cubes)	118-U-08	REC	4.00
Lego Gear set (only with Lego blocks)		Economy 5 & 10	5.50*
Abacounter	NN 151	Creative Playthings	5.00
Nice Cubes	SJ 360	Childcraft	1.50
Mental Blocks	SJ 363	"	3.00
Linjo	1102	Constructive Playthings	2.00
Intarsio Rounds	OM 320	Childcraft	6.00
Try Circles	UR 323	Creative Playthings	3.50
Geo-Blocks Problem Cards**	17587	McGraw-Hill	11.95
Focus	4808	Western Printing Co.	2.25
Attribute Stickers	18502	McGraw-Hill	3.99
Half-scale Unit Blocks (esp. with Unit Blocks)	NB 647	Creative Playthings	5.95
Set Dominoes	809	ETA	4.95
{Giant Grooved Dominoes	NN 146	Creative Playthings	9.95}
{Tactile Domino Blocks	OG 197	Childcraft	9.95}

* - less 10% discount to schools
** - suggested as teacher resource, not as student task cards

MATHEMATICS -- DESIRABLE MATERIALS - Page 2

Trimino	KB 744	Creative Playthings	2.00
Score Four		Funtastic, Inc.	5.00
Top Towers	201	M-I Sales Co.	3.95
Ji-Gan-Tiks		"	3.95
Join-ems	340	"	5.95
Soma cube puzzle (plastic)	SOMA33	SEE	2.00
Wood Block Puzzle (soma)	WOOD33	"	1.85
Octons	L 540	Galt	~1.75
Plastic Meccano Work Box	N 2456	"	~15.00
Abacus board	INV103	SEE	.70
same with 100 tablets	INC103	"	3.20
Abacus tablets, 160 in 8 colors	INV106	"	4.00
Polyatom	Z 80471	Herder & Herder	6.95
Plastic Spools (white, red, yellow, blue, green -- specify colors)		A.E. Piggott Ltd.	.84/100 8.40/1000
Colored 1" cubes (wood)	53089	[illegible]tt	4.00/100
Colored 1" cubes (plastic)	TN 353-1	Philip & Tacey	~3.00/120
Clear Acrylic cubes	SEE011 SEED11	SEE "	11.00/100 52.50/500

MATHEMATICS - INTERESTING MATERIALS - Page 1

Dr. Nim		Economy 5&10	3.50*
Metal Twisting Puzzles	71,164	Edmund Scientific	4.50/20
Knüpferli		Economy 5&10	2.98*
Geo-D-Stix	NS 167	Creative Playthings	4.95
Construct-A-Cube	GNO 872	SEE	2.35
Space Panels	OM 141	Childcraft	6.00
Rig-A-Jig	NT 662	Creative Playthings	4.00
Tangled Angles	L-025	F.A.O. Schwarz	5.00
Plastic Mosaic Shapes	INV 143	SEE	7.50
Scope		Economy 5&10	4.98*
Design Cubes	OM 380	Childcraft	5.00
Grouping Set	T 110	Taskmaster	13.30
Discovery Blocks	1500	E.T.A.	12.00
Shapes Matching Cubes	GN 1072	SEE	3.00
Fours	444444	SEE	4.00
Think-A-Dot		Economy 5&10	1.98*
Scribble Stix	83447	Hammett	5.00
H-Blocks	OM 166	Childcraft	6.95
Avalanche		Economy 5 & 10	4.50*
Pegity		"	
Playsticks	N 550	Galt	2.60
Square Domino Game	E-077	F.A.O. Schwarz	2.50
Birds-on-a-Tree Puzzle	NT 650	Creative Playthings	7.95

* - less 10% discount to schools

MATHEMATICS -- Materials for Older Children - Page 1
(7-8 years and up)

Many of the materials in the preceding three sections are suitable for children through all the elementary school years. Those below are probably only useful starting with 2nd or 3rd grade. The Dienes blocks are good building materials for younger children who would not grasp their formal applications; however, they are too expensive to replace other materials in the preceding sections.

Twixt	MMT110	SEE	7.95
Beeline	BEELIN	"	4.25
Mem	SG 212	Childcraft	6.00
Spirograph		Economy 5 & 10	4.25*
Poleidoblocs set A	120-G-10	REC	16.00
Dienes Multibase Arithmetic Blocks (MAB):			
Complete set (bases 3,4, 5,6,10, with work cards & teacher's manual)	Z 80008	Herder & Herder	118.00
Base 2 set	Z 80016	"	9.50
Dienes Algebraical Experience Materials (AEM):			
Complete set	Z 80011	Herder & Herder	59.00
Pantograph	55095	Hammett	3.50

* - less 10% discount to schools

MATHEMATICS-- Resource Books for Teachers

Nuffield Mathematics Project:

John Wiley & Sons, Inc.
605 Third Ave.
New York, New York 10016

Mathematics Begins	2.25
Pictorial Representation	2.25
Beginnings	2.50
I Do, and I Understand	1.95

Cuisenaire Series:

Cuisenaire Co. of America
12 Church St.
New Rochelle, N.Y. 10805

M. Goutard: Talks for Primary School Teachers	CB-18	1.00
C. Gattegno: Mathematics with Numbers in Color, Book A	CB-A	1.50

Elementary Science Study Teacher's Guides:

McGraw-Hill

Attribute Games & Problems	18479	4.86
Geo Blocks	17524	2.46
Geo Blocks Problem Cards	17587	11.95
Mirror Cards	18417	3.57
Pattern Blocks	17560	2.64
Peas and Particles	17521	3.27
Pendulums	17568	3.12
Primary Balancing (The Balance Book)	17511	5.13
Rocks and Charts	17564	2.46
Tangrams	17444	1.92

Elementary Science Study Working Papers:

Elementary Science Study
55 Chapel St.
Newton, Mass. 02160

Match and Measure	1.00

SCIENCE -- Basic Materials - Page 1

Sand and Water Play Containers:

Plastic Swimming Pools		buy locally	
Galvanized Tub		local hardware store	~5.00
Tri-Wall lined with polyethylene sheeting		homemade	under 5.00
Cement blocks and a tarp (for sand only)		homemade- for 6' x 7'	~30.00
Mobile Sandbox (24"x32")	NP 171	Creative Playthings	26.00
Sand & Water Play Table (72"x30")	OA 335	Childcraft	65.00
same (48"x24") with removable top	A 64	Community Playthings	59.00
same (30"x18") transparent plastic with drain and cover	INV789	SEE	44.80
Sand	local lumber yard		
Aluminum Liquid Measures, set of 5	NJ 070	Creative Playthings	9.50
Plastic measuring cups	buy locally		
Aluminum sifters & can	OA 497	Childcraft	4.50
Medicine droppers	buy locally or		
	KPST12	SEE	.50/doz.
Food coloring	buy locally		
Polyethylene sheeting:			
Clear, 6' x 100'		Transparent Products	4.80
Black, 10' x 100'		"	8.95
Plastic Syringes	local hospital or research lab or		
50 cc	GAOT09	SEE	.60
30 cc	GAST10	"	.45
20 cc	GAOT11	"	.40
Plastic funnels	buy locally or		
35 mm	25-465-1	Cambosco	.31
55 mm	25-465-2	"	.36
75 mm	25-465-4	"	.58
100 mm	25-465-6	"	.91
160 mm	25-465-7	"	1.90
Miniature Pump (for stream table; runs on flashlight batteries)	50,345	Edmund Scientific	2.25
Clear flexible tubing: (must specify I.D. & wall thickness)			
1/8" I.D.; 1/16" wall th. (for above pump)	364-65	LaPine	.11/ft.
¼" I.D.; 1/16" wall	364-65	"	.16/ft.
½" I.D.; 1/16" wall	364-65	"	.28/ft.

(other sizes available -- see LaPine catalogue)

SCIENCE -- Basic Materials - Page 2

Clear rigid tubing: (specify sizes)			
18" long x ½" dia.		Flex Products	15.50/350*
plugs for above		"	3.30/1000*
18" long x 1" dia.		"	14.70/150*
plugs for above		"	5.15/1000*
18" long x 1½" dia.		"	11.30/72*
plugs for above		"	10.25/1000*
(other sizes available -- see Flex Products catalogue)			
6" long x 1-1/8" dia	GAST03	SEE	.30
caps for above	GAST04	"	.40/10*
6" long x 5/8" dia.	GAST05	"	.20
caps for above	GAST06	"	.40/10*
Corks	buy locally or		
assorted, sizes 1-20	95-66	LaPine	4.00/100
Plastic basters (squeeze bulbs)		buy locally	
Elementary Science Study Teacher's Guides:			
Clay Boats	17562	McGraw-Hill	2.04
Sand	17683	"	3.57
Styrofoam blocks:			
12" x 36" x 1"	71335	Hammett	11.80/12
12" x 18" x ½"	71336	"	5.90/24
Containers for dirt, to plant and transplant		window boxes, a box lined with polyethylene, large plastic box, aquarium, gallon jar. flower pot	
Containers to collect things in and to keep things in		as above; see also General Equipment list and clear plastic storage boxes on Special Equipment list.	
Dipping net for collecting from ponds and rivers		buy locally or make from wire and old stocking	
Magnifiers:	buy locally or		
2X Magnifying Glass	OP 112	Childcraft	2.00
3X Fixed-base Magnifier	50,254	Edmund Scientific	2.00
10X Flashlight Magnifier	60,366	"	3.00
small cylindrical magnifier	79-35C	Cambosco	1.95
3X & 6X hand magnifier	MAG001	SEE	.60 5.00/10 45.00/100
Soil, Seeds, Plants, Animals		found, bought, bred	
Fluorescent plant light and stand	20 W 5100	Ward's	14.95

* - minimum order

SCIENCE -- Basic Materials - Page 3

Thermometer	SEETOO	SEE	.60
Aquarium, 5, 10, 1[illegible] gal.	buy locally		~7.00 to ~15.00 (.50 ea/10 or more)
	homemade -- cardboard box lined with polyethylene sheeting		
Aquarium, 10 gal, with complete accessories	75-33-2	Cambosco	26.25
Aquarium accessories, complete set	ON 405	Childcraft	11.95
Air pump & filter kit	75-111	Cambosco	6.30
Aquarium thermometer	75-105	"	.55

Elementary Science Study Teacher's Guides:

Brine Shrimp	17572	McGraw-Hill	2.46
Butterflies	17682	"	
Changes	17494	"	2.73
Crayfish	17573	"	2.46
Eggs & Tadpoles	18478	"	2.82
Growing Seeds	19360	"	3.30
Life of Beans & Peas	17525	"	2.46

Balances	homemade		
Multi-purpose Balance (ESS)	17567	McGraw-Hill	5.60
4 foot board & fulcrum	17581	"	4.95
Assorted materials for balancing	18449	"	6.25
Weight-scaled blocks	17582	"	17.50
Various sizes of washers		local hardware store	
Bathroom scales		local	
Tinkertoy # 155		Economy 5 & 10	5.98*

(see General Equipment list for other accessories to balancing; also, plastic spools below.)

Elementary Science Study Teacher's Guides:

The Balance Book	17511	McGraw-Hill	5.13
Mobiles	17512	"	2.37

Pendulums	homemade		
Pendulum supports (ESS)	17569	McGraw-Hill	33.50/5
Pendulum bobs (for 5 supports)	17570	"	19.75
Nylon fishing line	buy locally	(included with above)	

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* - less 10% discount to schools

SCIENCE -- Basic Materials - Page 4

1" dia. balls (with hole drilled through center, except steel & glass):

Brass	0713-40	Welch Scientific	.65
Aluminum	0714-41	"	.80
Cast Iron	0717-40	"	.55
Copper	0720-40	"	1.50
Cork	0721-40	"	.22
Hardwood	0725-40	"	.22
Lead	0729-40	"	.60
Glass	0723-40	"	.60
Steel	0733-40	"	.80

(hardwood, glass & steel included with pendulum bobs above)

Misc. Hardwood Parts		Economy 5 & 10	1.50/4 lb.*
SEE Swinger	SEE003	SEE	8.00

(see also General Equipment list for other accessories for pendulums)

Pendulums Teacher's Guide	17568	McGraw-Hill	3.12

Window sash pulleys	local hardware store		
Pulleys:			
single	Z-5200	LaPine	.90
double	Z-5210	"	1.20
triple	Z-5220	"	1.55
quadruple	Z-5230	"	1.85
Linen pulley cord	43-472	Cambosco	.85/25 yds.
Wooden wheels			
assorted 1", 1½", 2"	OW 204	Childcraft	2.50/gross
Balloons	buy locally		
3 ft. dia. balloons	P-71,184	Edmund Scientific	2.00/6
Plastic Spools (red, white, blue, yellow, green -- specify colors)		A.E. Piggott Ltd.	.84/100 8.40/1000
Styrofoam Balls:			
3/4" dia.	71328	Hammett	1.30/gross
1" "	OC 383	Childcraft	1.75/100
1½" "	71330	Hammett	3.40/gross
2" "	71331	"	5.50/gross
3" "	71332	"	7.00/6 doz.
Cork Balls:			
3/4" dia.		Economy 5 & 10	.29/6
1" "		"	.29/4
Polystyrene balls			
assorted sizes	P-70,770	Edmund Scientific	6.00/100
Rubber balls	buy locally		
Assorted springs	local hardware store or		
120 pc. assortment	70,860	Edmund	4.00

* - less 10% discount to schools

SCIENCE -- Basic Materials - Page 5

Batteries	buy locally or		
pkg. of 48	BATT48	SEE	8.50
#20 bare copper wire	BBCK01	"	1.35/100'
GE #48 bulbs	BB2508	"	5.00/25
	BBCK08	"	15.00/100
GE #41 bulbs	BB2509	"	5.00/25
	BBCK09	"	15.00/100
Bulb holders	BB1010	"	2.40/10
	BBCK10	"	13.20/60
Large rubber bands (battery holders)	BB4014	"	.55/40
	BBCK14	"	.90/80
large Fahnestock clips	BB2013	"	.75/20
	BBCX13	"	3.10/120
	BBCK13	"	9.75/420
Wire cutters/strippers	BB0116	"	1.40
	BBCK16	"	8.75/7
Pkg. of 8 spools of assorted wires	BB0807	"	12.90
Batteries & Bulbs Teacher's Guide	1749]	McGraw-Hill	5.49

Discarded and broken machinery and appliances, from homes, gov't. surplus: radios, clocks, televisions, telephones, typewriters, cash registers, turntables, small motors, pumps, vacuum cleaners, cameras.
Remove cords from electrical appliances which are to be taken apart.
Remove picture tubes from televisions.

Magnets: (several of each type)

Alnico magnets:

*1½ lb horseshoe magnet	60,215	Edmund Scientific	5.75
bar magnet	Z-4260	LaPine	1.80
18 assorted, small	60,581	Edmund	4.00
*U-magnet	P-40,916	"	2.25/2
cylinder, 3/8" dia. x 5"	P-60,131	"	3.00/2
cylinder, ¼" dia. x 1-3/4"	P-40,418	"	1.20/2
disc, 1-9/16" dia.	P-40,419	"	2.65/2
horseshoe, 3/4" across poles	219-11A	LaPine	1.00
" 1-3/16" " "	219-11B	"	1.50
* " 1-5/8" " "	219-11C	"	2.40
*U-magnet, 1-5/8" " "	59-63	Cambosco	3.45
*ring, gap magnets	P-40,964	Edmund	2.35/4

Ceramic Magnets:

*rectangular	P-40,818	Edmund	1.40/2
ring, 1½" O.D.	P-40,869	"	1.00/4
ring, 2-3/8" O.D.	40,462	"	2.00
disc, ½" dia.	P-40,820	"	1.00/25
rect., small w/center hole	P-40,637	"	1.00/10
*channel magnet w/handle	40,847	"	2.00
ring, 1" O.D.	OP 307	Childcraft	1.95/12

* - indicates a particularly strong magnet

SCIENCE - Basic Materials - Page 6

Rubberized Magnets:			
rect., w/center hole	BB2518	SEE	2.50/25
	BBCK18	"	8.00/100
assorted	1804	Welch	2.50
flexible strip	60,092	Edmund	1.25/ft.
flexible cord	40,875	"	2.50/10 ft.
same	40,876	"	6.00/25 ft.
Lodestone	Z-3950	LaPine	.35
Magnetic balls	60,508	Edmund	1.00
Small steel balls	59-173	Cambosco	.38/100
Iron filings	59-178	"	.63/lb.
Magnetic compass	59-229	"	.53
Flashlight	buy locally		
3-color flashlight with blinker	SJ 368	Childcraft	1.50
Prisms:			
2" equilateral	OP 143	Childcraft	1.00
6" "	OP 140	"	2.00
6" "	NS 764	Creative Playthings	2.00
penta prism	40,622	Edmund	6.50
Perspex, set of 7	INV680	SEE	24.75
Colored gel	buy locally		
full length mirror (glass)	buy locally or		
Stand Up Mirror (metal)	S 62	Constructive Playthings	14.80
Wall mirror (metal 14"x12")	S 63	"	7.00
Plastic mirrors (specify 1/8" thick & desired dimensions)			
		Parallel Mfg. Corp.	4.00/sq.ft.
Metal mirror, 4"x6"	PBCK02	SEE	.80
			2.00/3
Plastic mirror, 2½"x3½"	MIRROR	"	.45 (.40 ea/10 or more)
Mirror Cloth (specify #1 Clear Mirror; also size of mirrors & size of cloth)			
½" x ½" mirrors		National Products	2.30/sq.ft.
½" x 1" "		"	2.00/sq.ft.
1" x 1" "		"	2.00/sq.ft.
Polarizing sheets, 6" x 6"	P-60,637	Edmund	2.50/4
Color Paddles (3)	NA 814	Creative Playthings	1.50

SCIENCE -- Basic Materials -- Page 7

Kaleidoscope (wood)	NJ 368	Creative Playthings	8.00
Magic Reflector (teleidoscope)	NJ 010	"	5.95
Iceland Spar	Z-6153	LaPine	.75
Optics (ESS) Teacher's Guide			
Light & Shadows T.G.	16421	McGraw-Hill	2.79

Stethoscope	ON 233	Childcraft	2.75
eggbeaters	buy locally		
Dinosaur kit (24 miniature plastic dinosaurs)	70,817	Edmund	6.00
Stopwatch	NS 746	Creative Playthings	5.00
Minute Minder	buy locally or		
	NA 370	Creative Playthings	3.50
3-minute "hourglass" timer, embedded in plastic block	40,980	Edmund	1.00
same	TIMER3	SEE	1.00
pictures	collect from magazines, newspapers, etc.		
charts		National Audubon Society	

SCIENCE-- Desirable Materials - Page 1

Plastic Bottle with hole in bottom	KPS007	SEE	.40
Set of 5 caps with different sized holes, for above	KPS008	"	.75
Atomizer w/8 oz. bottle	17-444	Cambosco	1.00 10.00/doz.
Plastic filtering flask	25-280	"	1.95
Plastic Erlenmeyer Flask	25-270-2	"	2.00
Barometer	67-36	Cambosco	6.50
Micro Bio Chamber	73-301	"	8.75
Reading Glass, plastic lens	60,635	Edmund	1.00
Small stand magnifier	NS 170	Creative Playthings	3.50
Field Microscope, 30X	SEEFMO	SEE	6.25
Capturing magnifier, 4X	MAG04X	"	4.10
Magnifier, 8X	MAG08R	"	4.10
Magnifier, 10X	MAG10R	"	5.25
1" hand lenses, 5X	MGBX03	"	1.25/10
	MGBC03	"	11.00/100
Spiral Wave Motion Spring	55-116	Cambosco	4.95
Gyroscope	GYR001	SEE	.75
Turntable bearing mount	40,602	Edmund	1.50
Rubbermaid Turntable		Economy 5 & 10	.98*
Double Tandem Pulley	Z-5240	LaPine	2.10
Triple Tandem Pulley	Z-5250	"	2.70
Large dial spring balance	15-305	Cambosco	6.50
Linear spring balance	15-330	"	2.50

* - less 10% discount to schools

SCIENCE -- Desirable Materials - Page 2

Battery operated toys	buy locally		
Magnastiks	OM 289	Childcraft	7.95
Magnetic Needle	Z-4100	LaPine	1.90
Encased Iron Filings	NS 741	Creative Playthings	.79
Magnet Building set	L 26	Galt	~2.50
Mounted Polarizing Filters	40,991	Edmund	4.00
Moire Patterns Color Kit	60,530	"	12.50
Color filters, 5"x8" set of 44 colors	60,403	"	8.00
Rainbow Box	UR 277	Creative Playthings	3.50
Hand Stroboscope	3742	Welch	2.25
Ray Box (incl. 4 prisms)	3665A	"	15.00
Paddle mirrors & standing mirror	MS 053	Creative Playthings	11.50
One-way glass mirror, 5 x 15 cm.	57-226	Cambosco	1.20
Concave-convex metal mirrors:			
75 mm. dia.	Z-4550	LaPine	1.40
2" x 4" cylindrical	Z-4555	"	1.55
1" x 6" "	57-244-1	Cambosco	1.00
Refraction plate	Z-3100	LaPine	1.25
Refraction cube	57-315	Cambosco	3.85
Prisms:			
flat equilateral	Z-5060	LaPine	1.40
flat right angle	Z-5070	"	2.00
right angle, 75 x 25 mm	Z-5080	"	2.25
equilateral, 75 x 25 mm	Z-5050	"	1.75
Amici roof prism	3002	Edmund	1.50
Dove prism	40,917	"	3.00

SCIENCE - Books for Children - Page 1
(a beginning list)

The Golden Press Books - Zim, paperback, $1.00@

- Rocks & Minerals
- Zoology
- Reptiles & Amphibians
- Non-flowering Plants
- Trees
- Birds
- Mammals
- Pond Life
- Insect Pests
- Fishes
- Fossils
- Butterflies & Moths
- Seashells of the World
- Seashores
- Weather
- Stars
- The Sky Observers Guide
- Spiders and Their Kin

Life Nature Library - Young Readers Edition, $3.95@

- The Earth
- The Fishes
- The Birds
- The Primates
- The Mammals
- The Reptiles
- The Mountains
- The Universe
- The Desert
- The Sea
- The Animal Behavior
- Early Man
- Evolution
- The Forest

Living Mammals of the World - Ivan T. Sanderson, $12.50
" Reptiles " " " " " "
" Insects " " " " " "
" Birds " " " " " "
" Amphibians " " " " " "

We Discover Series - E.J. Arnold, England

- Birds
- Plants
- Aquarium
- Time
- Clocks
- Magnets
- Light
- Lenses
- Colour

Observe & Learn Series - Rupert Hart-Davis, England

- Birds
- Trees
- Weeds
- Snails
- Caterpillars
- Insects

The First Book of Animal Signs, C.B. Colby, Franklin Watts. Inc., N.Y., 1966

Winter-Sleeping Wildlife, Will Barker, Harper & Bros., N.Y., 1958

I Like Caterpillars, Gladys Conklin, $3.50

I Like Butterflies, Gladys Conklin, $3.50

Alligator Hole, Julian May, $3.95

Ducks Don't Get Wet, A. Goldin

A Book of Snails, S.M. Kellin

SCIENCE - Books for Children - Page 2

The Birth of Sunset's Kittens, C. Stevens

Caterpillars, D. Sterling

In A Running Brook, C. & W. Lubell

The Tall Grass Zoo, C. &. W. Lubell

Green is for Growing, C. &. W. Lubell

How Insects Grow, Gladys Conklin

The Bug Club Book, Gladys Conklin

A Trip to the Pond, Melita Hofman

Lions in the Grass, P. Busch

Mushrooms, Ferns, & Mosses - How & Why Wonder Book

In Ponds & Streams, M.W. Buck

In Yards & Gardens, M.W. Buck

In Woods & Fields, M.W. Buck

The Moon Tonight, G. Hawkins

The Beginning Knowledge Book of Backyard Trees, H. Rush

Rain Drop Splash, A. Tresselt

Swamp Spring, C. & D. Carrick

Once There Was a Tree, P. Busch

Your Skin and Mine, P. Showers

The Last Free Bird, Stone

Everything Changes, Howell & Strong

Plants of Woodland & Wayside, Su Zan Noguchi Swain

The Story of Taou, Robert Vavra

Natural History Magazine, Museum of Natural History, N.Y.

National Geographic Magazine, National Geographic Society, Washington. D.C.

The Curious Naturalist, Massachusetts Audobon Society Magazine

Ranger Rick , Ranger Rick's Nature Club Services

A Child is Born, Nilsson

SCIENCE - Books for Teachers
(a beginning list)

Peterson Field Guide Series - Houghton Mifflin Co., Boston, Mass.
- Birds
- Shells of Atlantic & Gulf Coasts
- Butterflies
- Mammals
- Rocks & Minerals
- Animal Tracks
- Ferns & Related Families
- Trees & Related Shrubs
- Reptiles & Amphibians

Making Things Grow, Thalassa Cruso, Alfred A. Knopf, Inc., N.Y.

National Geographic Magazine, National Geographic Society, Washington, D.C.

Natural History Magazine, Museum of Natural History, N.Y.

Plants of Woodland & Wayside, Su Zan Noguchi Swain

Nuffield Junior Science Project: Science Research Associates, Ltd.
44 Prince Andrew Place
Don Mills Ontario, Canada

Apparatus	4.40
Animals and Plants	4.40
Teacher's Guide 1	4.40
Teacher's Guide 2	4.40
Mammals in Classrooms	.80
Autumn into Winter	.80
Science and History	.80

Elementary Science Study:

Teacher's Guides — see McGraw-Hill catalogue
Working Papers — see ESS Newsletter from
Elementary Science Study
55 Chapel St.
Newton, Mass. 02160

700 Science Experiments for Everyone - Doubleday and Company Inc. $4.50
501 Franklin Avenue
Garden City
Long Island, New York